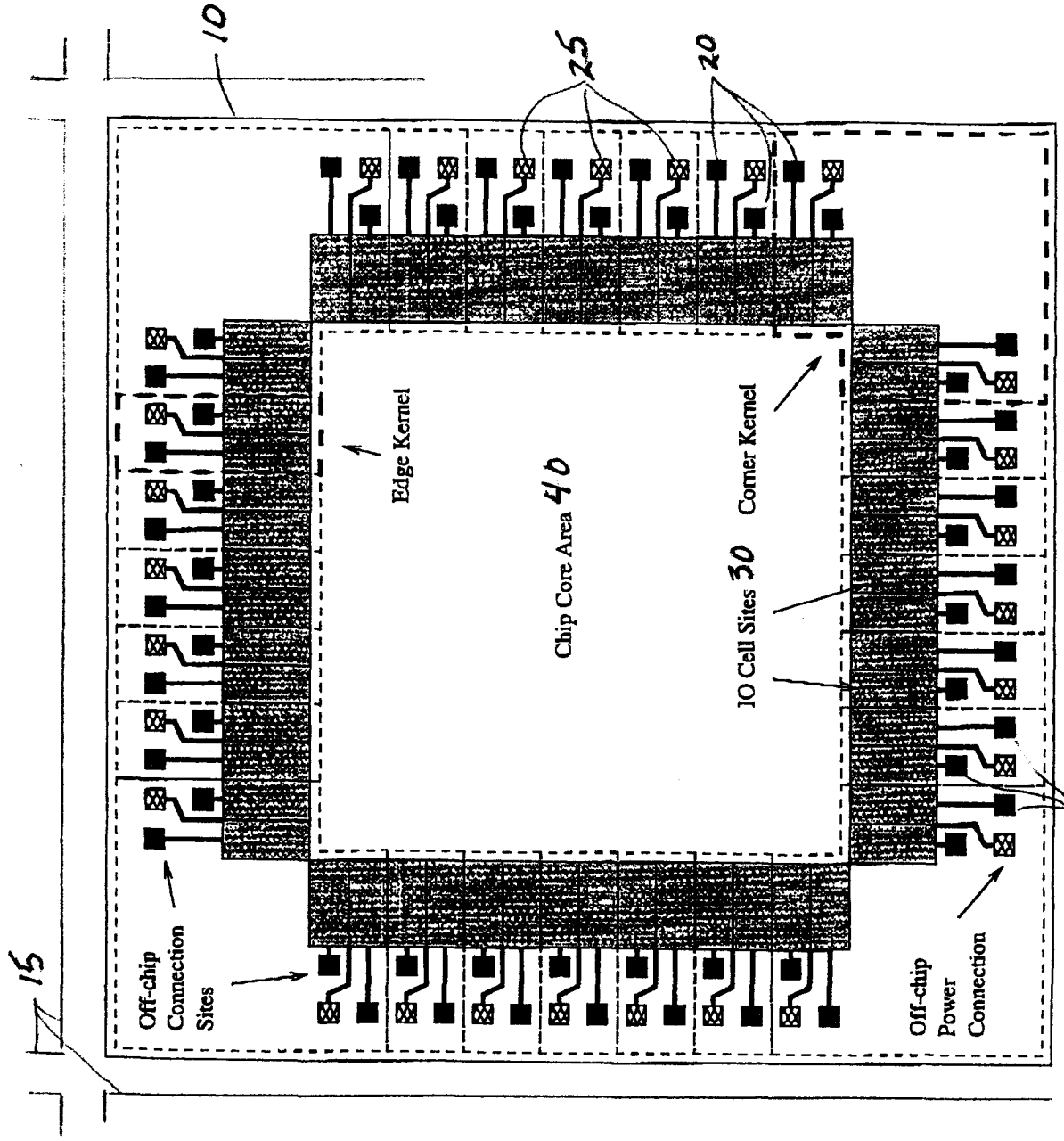

FIG. 1 (Related Art)

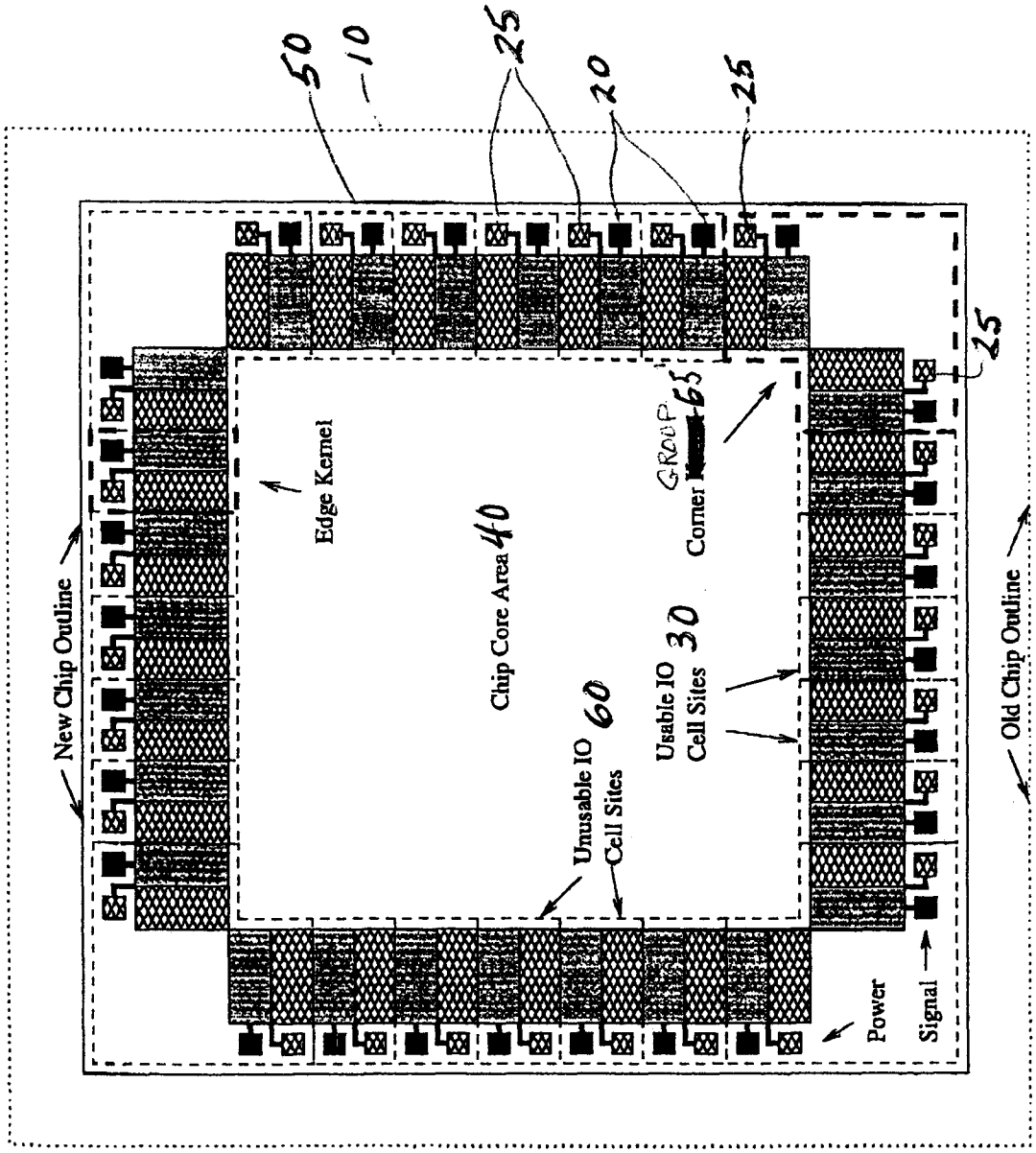

FIG. 2 (Related Art)

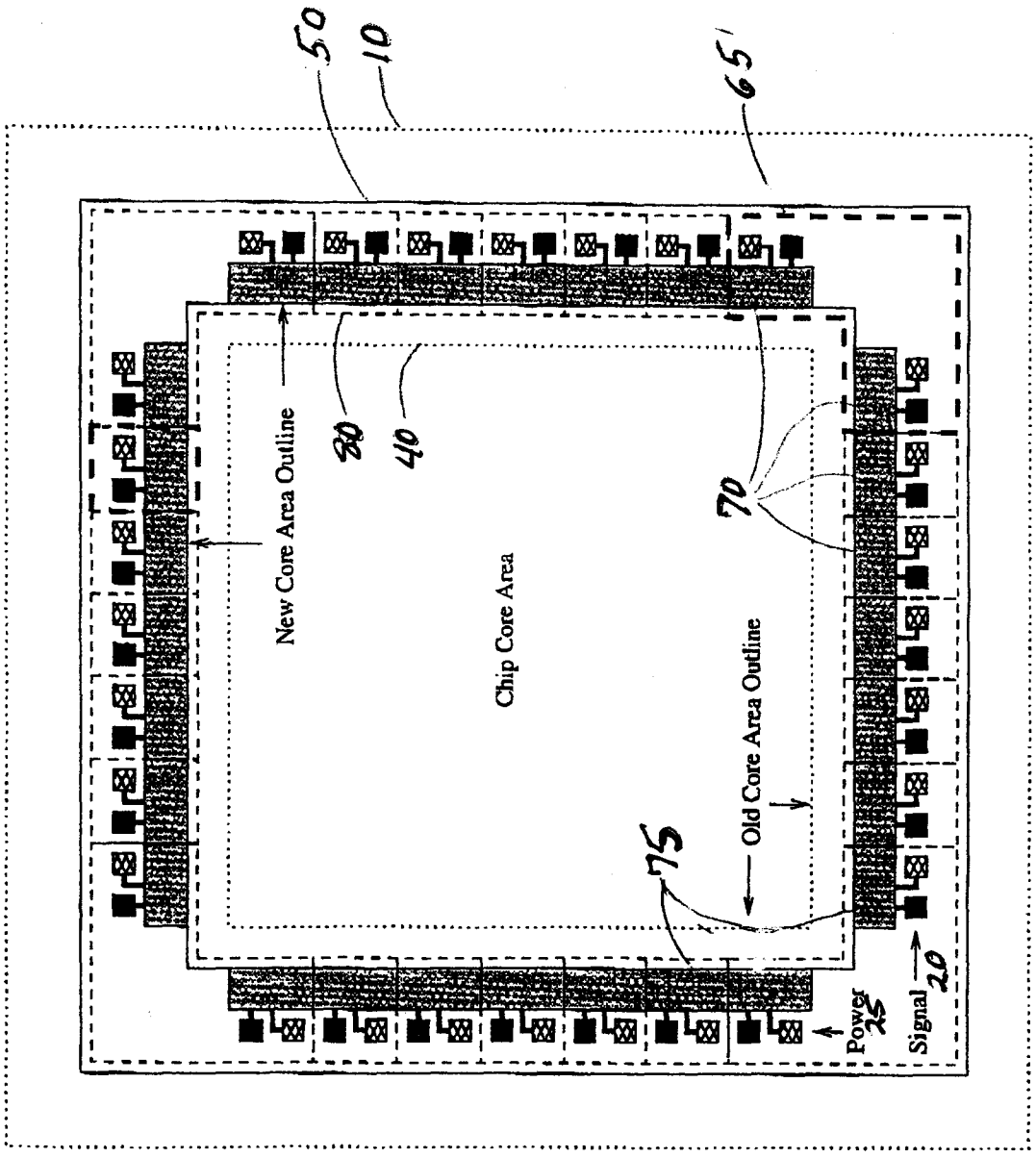

FIG. 3 (Related Art)

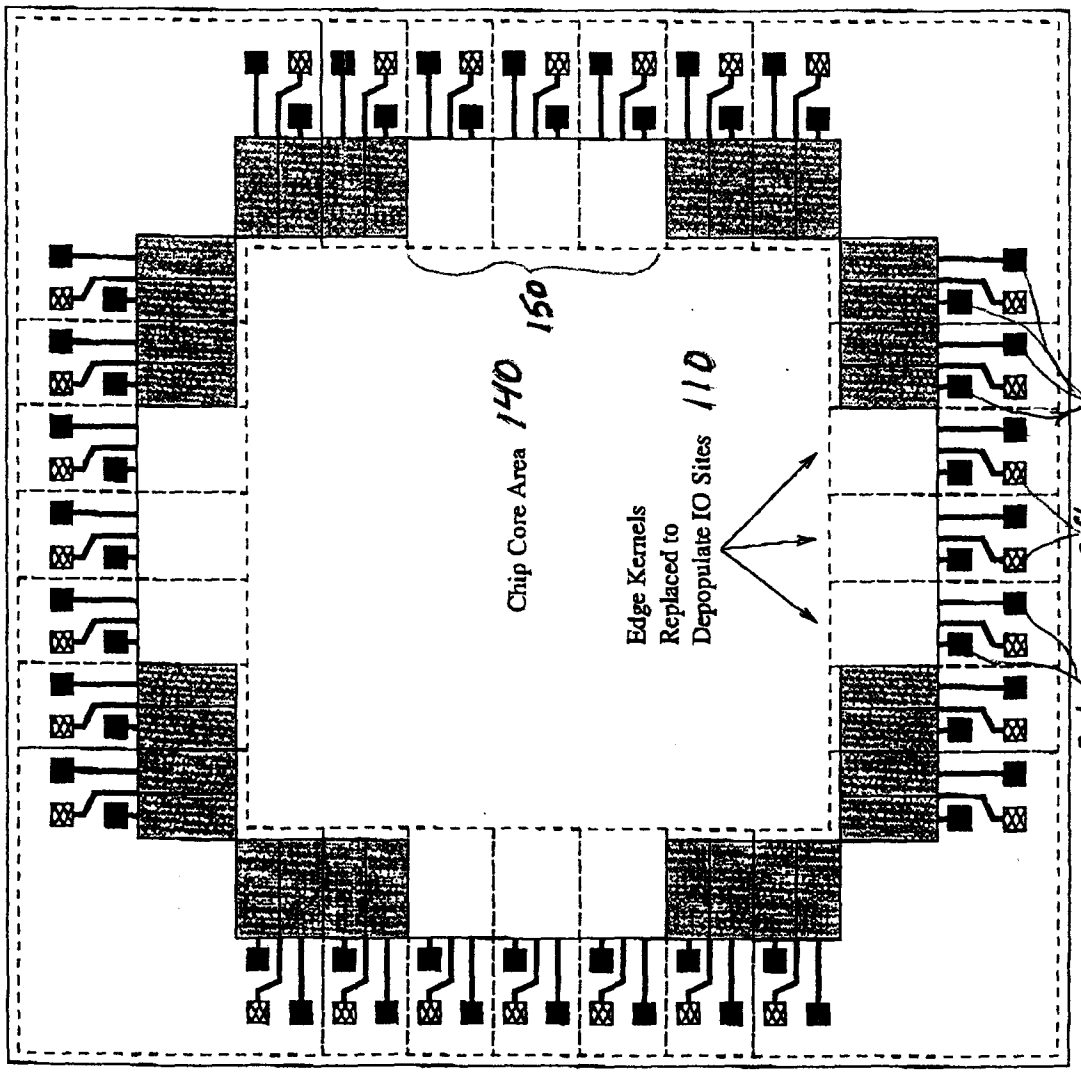
150
140
Chip Core Area
110
Edge Kernels
Replaced to
Depopulate IO Sites
20
25'
20'

FIG. 4

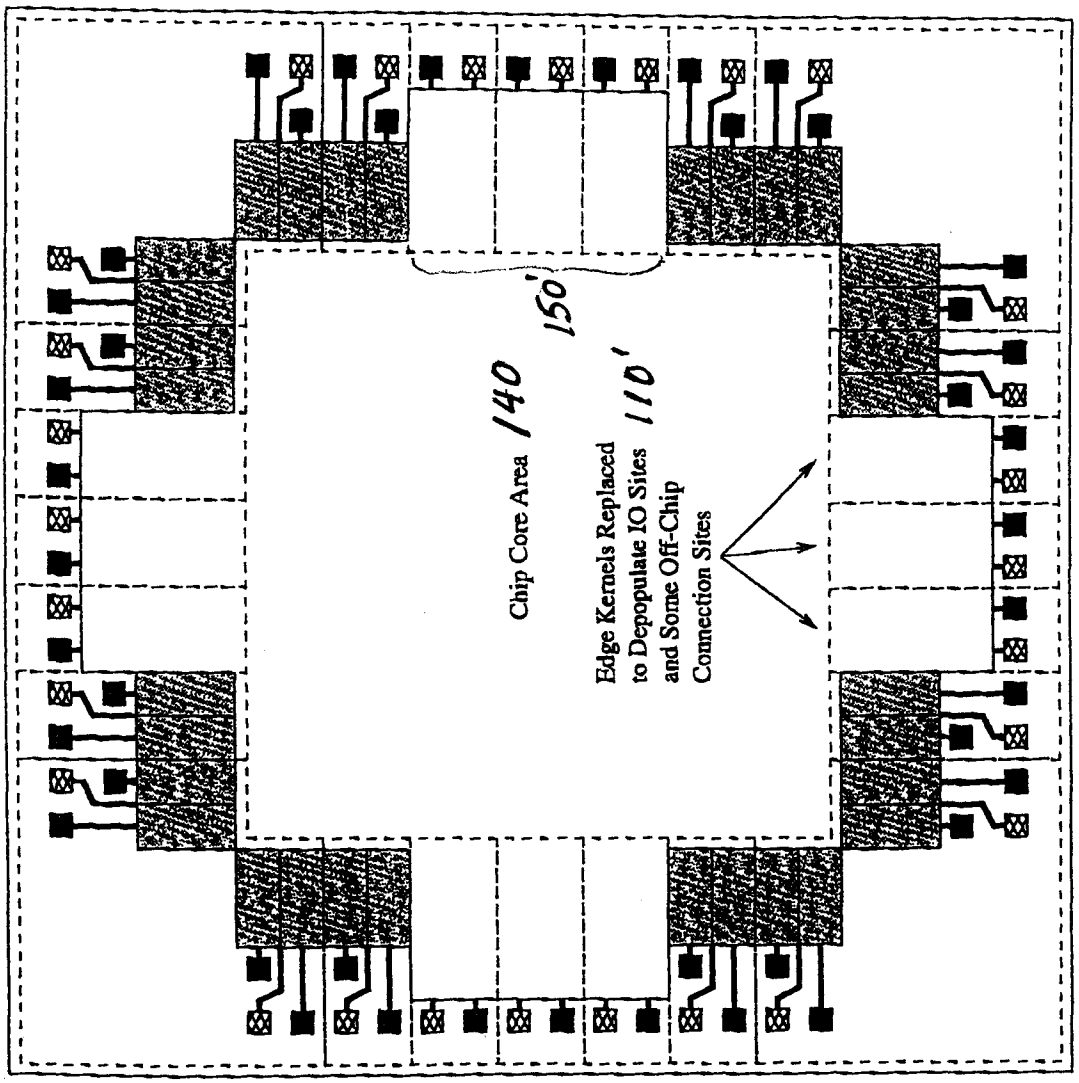
150'
140
110'
Chip Core Area
Edge Kernels Replaced
to Depopulate IO Sites
and Some Off-Chip
Connection Sites

FIG 5

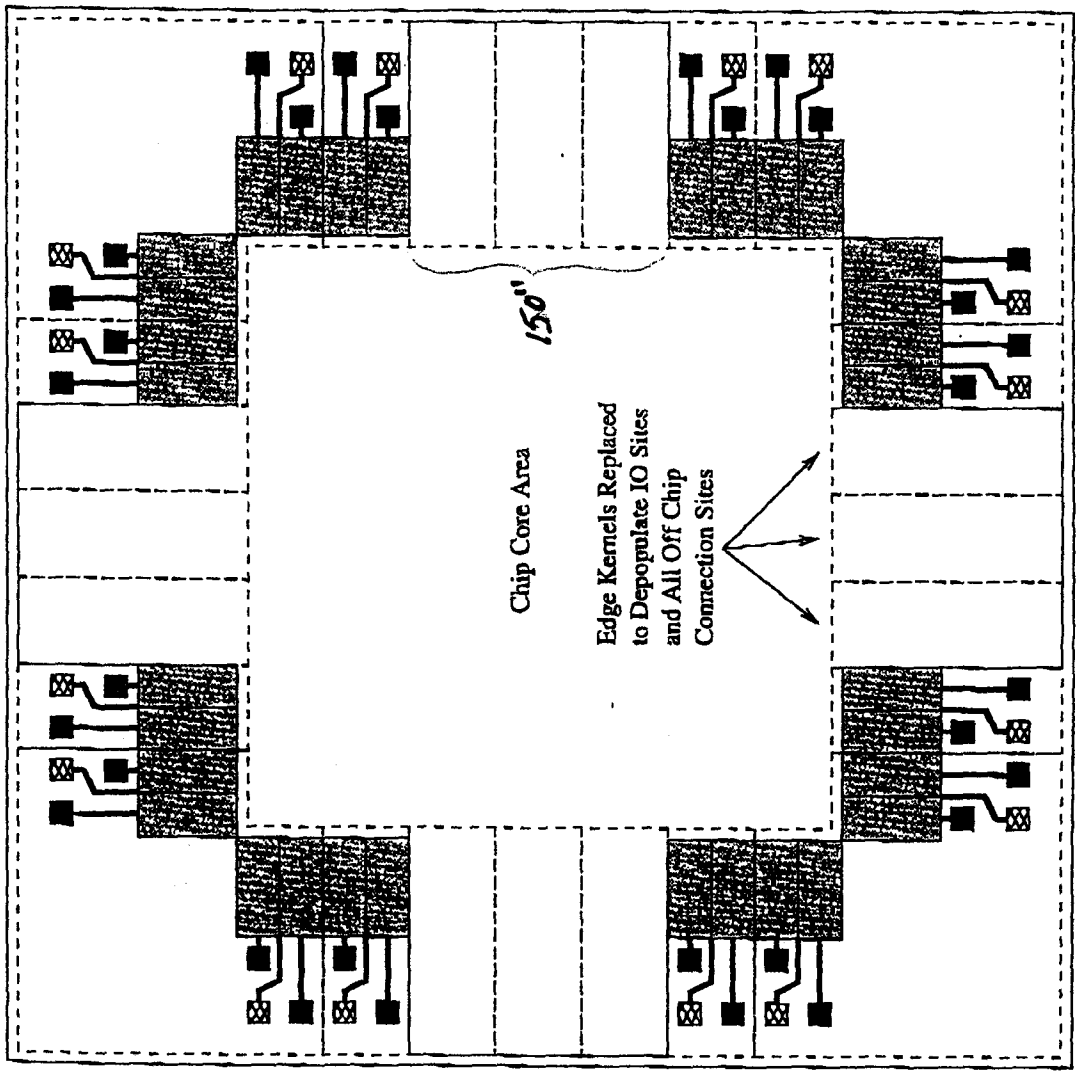
150"
Chip Core Area
Edge Kernels Replaced to Depopulate IO Sites and All Off Chip Connection Sites

FIG. 5A

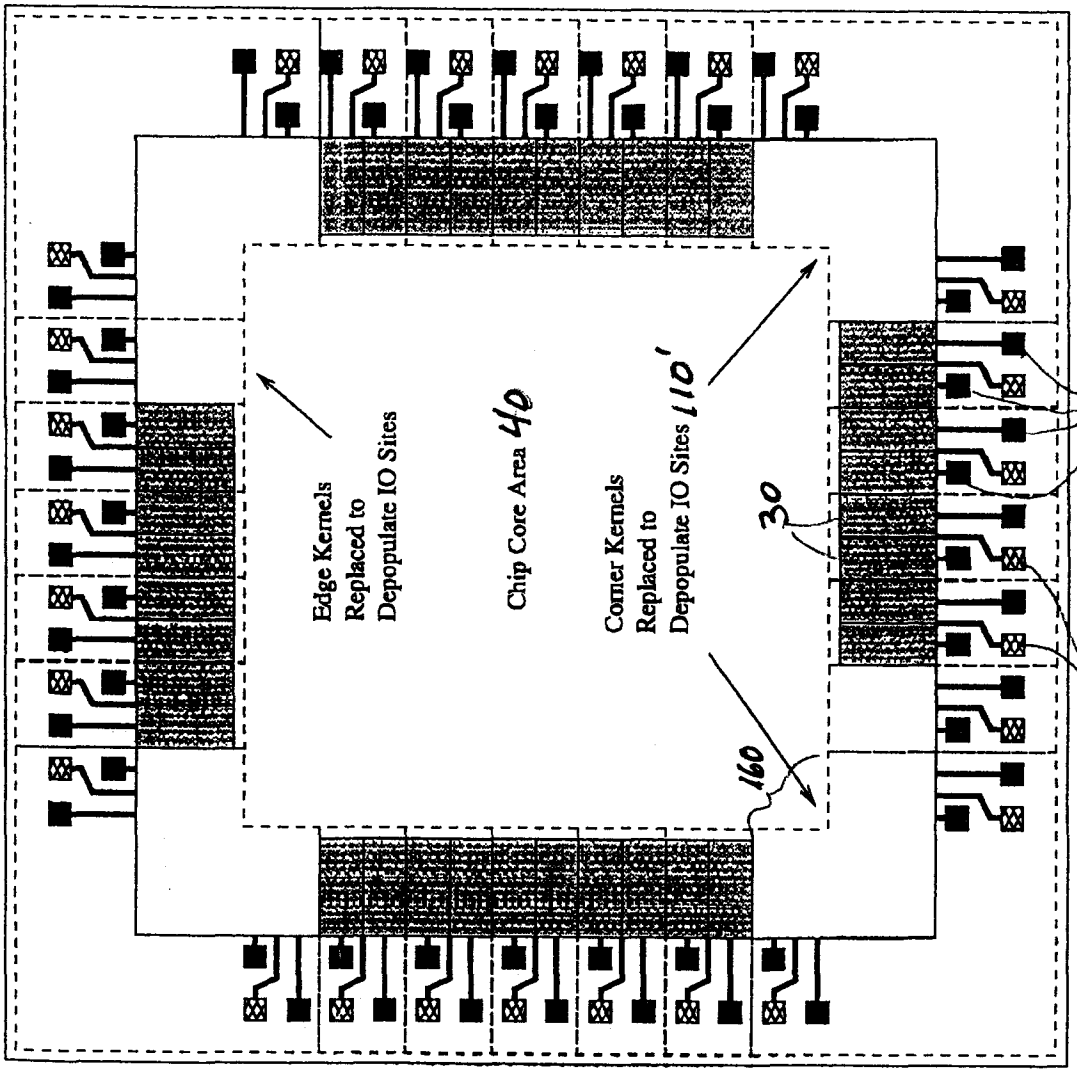
Edge Kernels
Replaced to
Depopulate IO Sites
Chip Core Area 40
Corner Kernels
Replaced to
Depopulate IO Sites 110'
160
30
20
25

FIG. 6

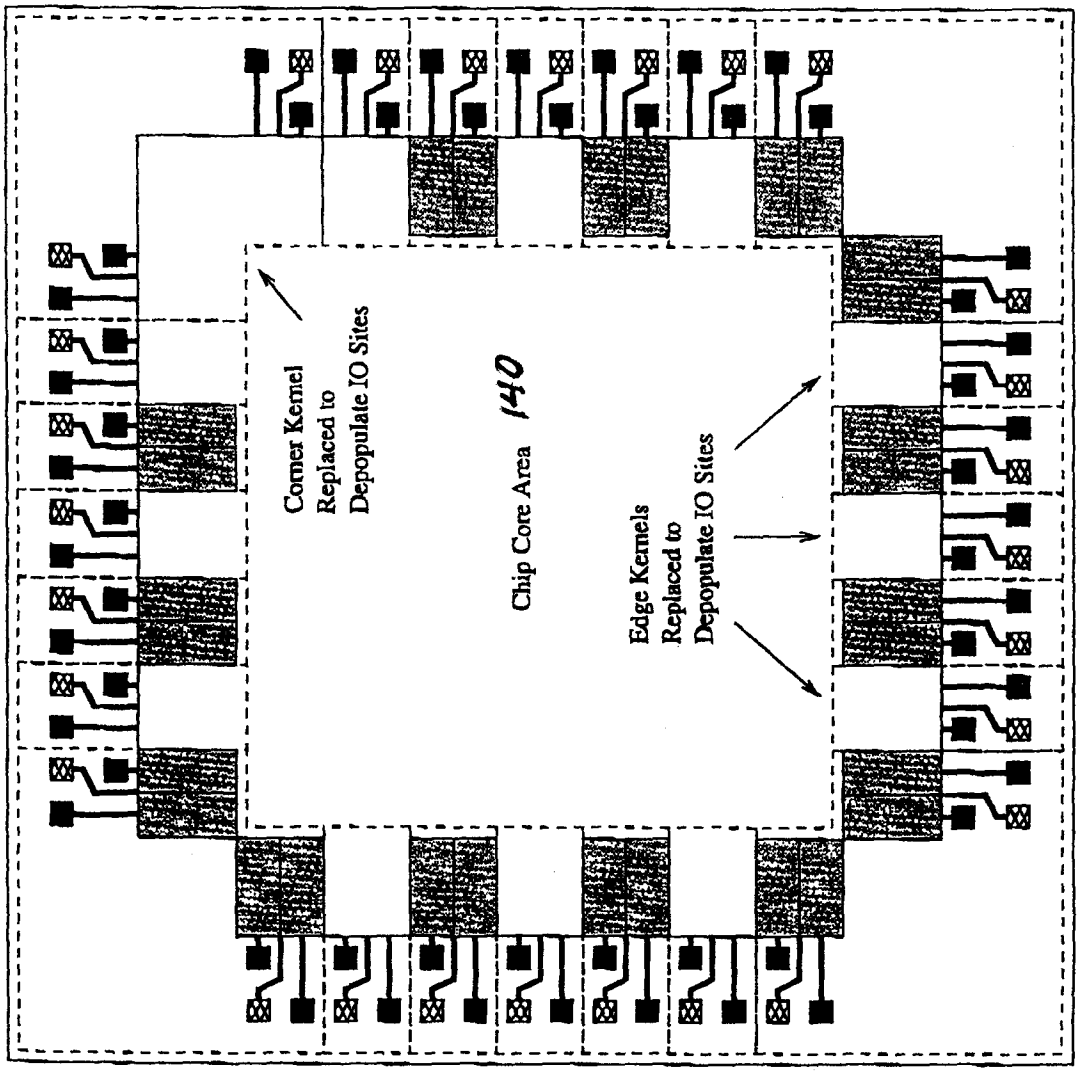
Corner Kernel
Replaced to
Depopulate IO Sites
Chip Core Area
140
Edge Kernels
Replaced to
Depopulate IO Sites

FIG. 7

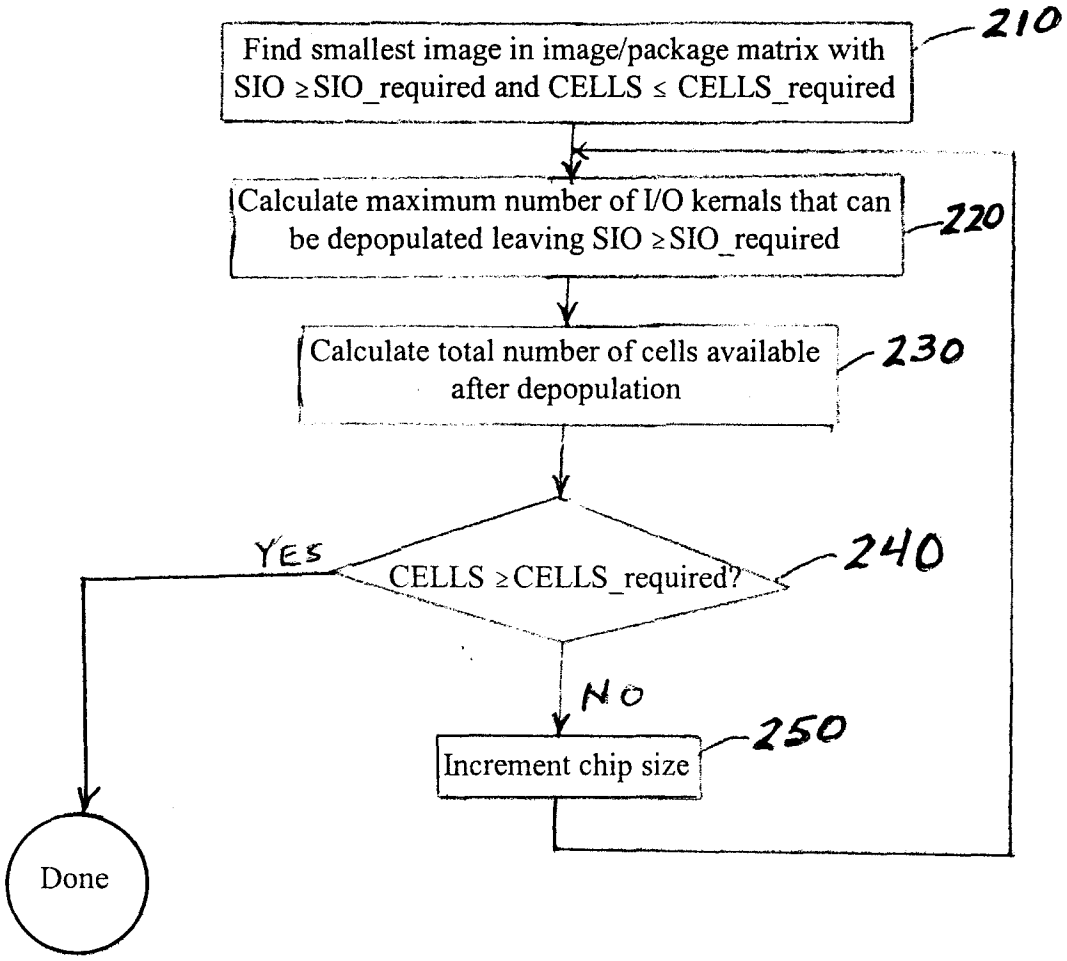
Find smallest image in image/package matrix with SIO ≥ SIO_required and CELLS ≤ CELLS_required
210
Calculate maximum number of I/O kernals that can be depopulated leaving SIO ≥ SIO_required
220
Calculate total number of cells available after depopulation
230
CELLS ≥ CELLS_required?
240
YES
NO
Increment chip size
250
Done

FIG. 8

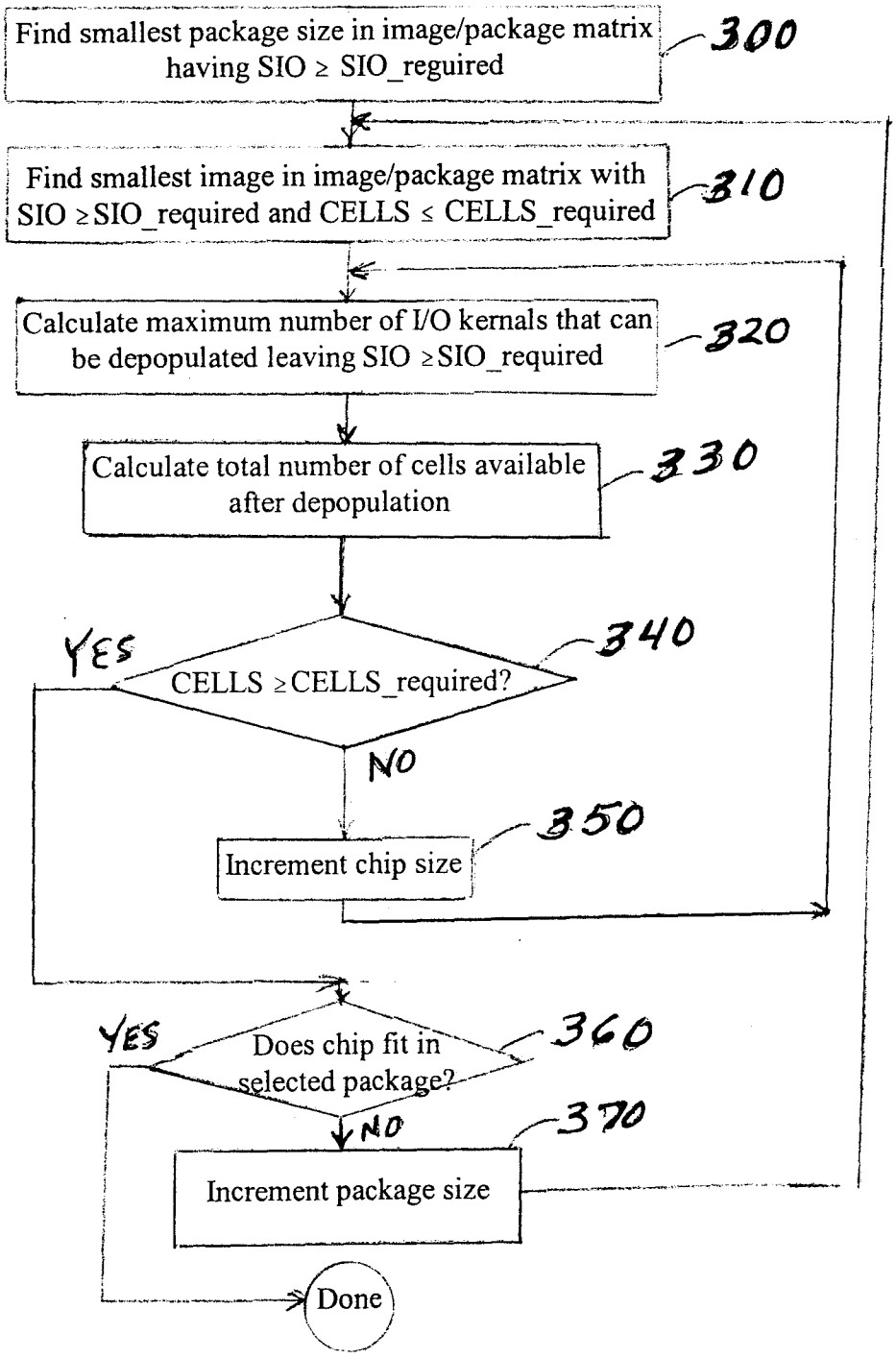
Find smallest package size in image/package matrix having SIO ≥ SIO_reguired
300
Find smallest image in image/package matrix with SIO ≥SIO_required and CELLS ≤ CELLS_required
310
Calculate maximum number of I/O kernals that can be depopulated leaving SIO ≥SIO_required
320
Calculate total number of cells available after depopulation
330
YES
CELLS ≥CELLS_required?
340
NO
Increment chip size
350
YES
Does chip fit in selected package?
360
NO
Increment package size
370
Done

FIG. 9

Chip Image	4.85 mm x 4.85 mm	5.58 mm x 5.58 mm	6.30 mm x 6.30 mm
Core Cell Area (dimensions)	3.89 mm x 3.89 mm	4.62 mm x 4.62 mm	5.34 mm x 5.34 mm
Core Cell Area	15.13 mm^2	21.34 mm^2	28.52 mm^2
Total Usable IO cell sites	352	416	480
# of edge kernel (per side)	8	10	12
# of corner kernel (per corner)	1	1	1

Usable IO Sites per Edge Kernel	8
Core Area Recovered by replacing an edge kernel	0.36 mm^2
Usable IO Sites per Corner Kernel	24
Core Area Recovered by replacing a corner kernel	1.0 mm^2

FIG. 10